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ABSTRACT

The efficacy of training parents as behavior modifiers of problem behaviors displayed by their seven-year-old severely retarded son was investigated in relationship to targeted problem behaviors including throwing objects, refusing to comply with parental commands, and refusing to sit in a chair at a table. In order to deal with the child's retardation which resulted from a rare chromosomal aberration previously unexplored in the behavioral therapy literature, parents were instructed in a simple behavioral treatment package consisting of verbal punishment and reinforcement. Treatment was assessed according to a multiple baseline across behaviors design. Results showed significant improvement on all three target behaviors following the application of the treatment intervention. Transfer of training to the natural environment was assessed and results revealed maintenance of behavioral improvement in a two-month followup. (Author)

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Parents as Behavior Therapists:

A Single Case Study

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Running head: Parents as Therapists

Summary

The present study assessed the efficacy of training parents as behavior modifiers of problem behaviors displayed by their 7-year-old severely retarded son. The targeted problem behaviors included (1) throwing objects; (2) refusing to comply with parental commands; (3) refusing to sit in a chair at a table. The case is unique in that the child's retardation resulted from a rare chromosomal aberration previously unexplored in the behavioral therapy literature. Parents were instructed in a simple behavioral treatment package consisting of verbal punishment and reinforcement. Treatment was assessed according to a multiple baseline across behaviors design. Results showed significant improvement on all three target behaviors following the application of the treatment intervention. Transfer of training to the natural environment was assessed. Results revealed maintenance of behavioral improvement at this two-month follow-up.

Parents as Behavior Modifiers: Intervention for Three Problem Behaviors in a Severely Retarded Child

In recent years, researchers have investigated the efficacy of training parents to serve as active agents in changing the behavior of their children. This approach has yielded considerable success across a wide variety of behavioral problems such as self-injurious behavior (Allen & Harris, 1966); eating problems (Bernal, 1973); enuresis (DeLeon & Mandell, 1966); school phobia (Hersen, 1971); and thumbsucking (Knight & McKenzie, 1974). The success of such parent training techniques led O'Dell (1974) to conclude: "There does not appear to be any class of overt child behavior that parents cannot be trained to modify" (p. 421).

The present study represents a single case multiple-baseline design in which the parents of a 7-year-old mentally retarded boy served as the primary behavior modifiers of their son's problem behaviors.

Method

Subject. Steven R. was a 7-year-old, white, male referred to the Psychological Services Center (PSC) of the Department of Psychology, VPI & SU in Blacksburg, VA for severe behavior problems. Steven suffered from ring aberration, a rare congenital chromosome defect in which the breakage of both arms of a chromatid was followed by fusion

of the broken arms to form a circular chromosome. Varying amounts of genetic information were deleted or lost (Berkow, 1977). Steven's chromosomal damage occurred in the "D" group (including chromosomes 13, 14, 15) resulting in profound to severe mental retardation, hyperactivity, short attention span, tonic-clonic and petit mal seizures, abnormal EEG, mild heart blockage, and pseudoretinitis pigmentosa (a pigmentary degeneration of the retina arising from intrauterine viral infections or vascular lesions). Steven was taking phenytoin (Dilantin) and phenobarbital up until one month prior to the onset of the present study. At that time he was prescribed carbamazepine (Tegratal) and valproic acid (Depakene) for control of seizures. Medication was not changed during the course of the present study (Sisk, Note 1).

In addition to Steven's physical problems, his hyperactivity and refusal to obey his parents created considerable difficulties for the family. One professional working with Steven wrote "he is very active, distractible and has a short attention span. He is frequently uncooperative and refuses to perform required tasks". Steven's behavioral problems (e.g., throwing objects, refusing to sit in a chair) prevented IQ testing; however, the results of the Developmental Profile (Alpern & Boll, 1972) estimated Steven's IQ equivalency score to be 33. This score would place him in the severe range of retardation. Although he has very limited verbal skills at present, he was in a special class for trainable mentally retarded individuals.

Steven was an only child. His father was a university student; his mother was a housewife and an active member of a rights for retarded citizens group. Both parents were concerned about Steven's behavior problems and noted that his behavior prohibited many family outings. For example they stated that it was difficult to take Steven shopping, to a doctor's appointment, or to a restaurant. In fact, Mrs. R. reported that while she and her husband enjoyed dining out, they did not like to take Steven to anything but fast-food restaurants where they could leave quickly and eat in the car. Past experience had shown the child's behavior to be disruptive in these situations and embarrassing to the parents.

The first author observed Steven's behavior once in his home and twice in his classroom. Parents were then seen at the PSC and discussed the behaviors that they wanted to see changed. The parents mutually designated three problematic behaviors which served as target behaviors for the multiple baseline experiment. These behaviors were: (1) throwing and/or deliberately dropping objects on the floor; (2) refusing to comply with parental demands; and (3) refusing to sit quietly in a chair at a table.

Response Definitions. Dependent measures (target behaviors) were defined in the following way:

(1) Throwing - Throwing was defined as any object being thrown (e.g., hurled or pitched underhand), deliberately dropped, or slid off a table or chair such that the object hit the floor. Accidentally dropping an object was not considered to be a throwing response.

(2) Non-Compliance - Non-compliance was defined as a parental command given twice in quick succession with no move to comply within 10 seconds of the completion of the second command statement. If the parents attempted to assist Steven in complying with a command and he moved against the command (e.g., posturing, screaming, saying "no", running away) his behavior was scored as non-compliant.

(3) Compliance - Compliance was defined as the parent giving a command once or twice in close succession and Steven responding with 10 seconds of either the first or second command. If the parents assisted in helping Steven to move in the direction of a compliant response and Steven did not resist such assistance this behavior was scored as compliant.

(4) Time Spent in the Chair - Time spent in the chair was defined as sitting in one of the three chairs at a table. Squatting, kneeling, or standing in front of the chair were not scored as time spent in the chair.

Procedure. The parents agreed to attend daily 30-minute sessions at the PSC for a period of 12 consecutive days. During these sessions the family interacted in a group room while being videotaped from an adjacent room. The experimental room contained a table surrounded by three chairs, several additional chairs along the walls, a desk, and a one-way mirror. Videotaping was carried out through the one-way mirror by the first or second author using a Sony Videocassette recorder.

Sessions 1-3 served as initial baseline measures. Parents were instructed to interact with Steven as they "normally" did. They were

encouraged to work quietly at the table with Steven playing with various puzzles and games that they had brought from home.

Between Sessions 3 and 4 the parents were instructed to verbally punish their son for targeted negative behaviors and socially reinforce him for behaviors they "would like to see more of". Specifically, parents were told to respond with a firm "no" for the targeted negative behavior and offer verbal praise ("that's a good boy, Steven") and gentle touches for behaviors they viewed as positive. It was noticed that many of the interactions between father and son were predominantly disciplinary in nature with very few positive interactions between them.

For this reason, parents were instructed to alternate (as much as possible) the delivery of punishment and reinforcement. It was thought that this procedure would more optimally divide responsibility for punishment between the parents and afford greater opportunities for positive father-son interactions. Additionally, parents were instructed to praise each other for carrying out the treatment program.

Beginning with Session 4 parents were told at the start of each session which behaivors were targeted for that session. During Sessions 4-6 the treatment package was in effect for throwing behavior. During Sessions 7-9 the treatment package was in effect for throwing behavior and non-compliance. During Sessions 10-12 the treatment package was in effect for throwing behavior, non-compliance and time spent in the chair.

The parents were asked for comments following each session to assess their feelings and to incorporate any suggestions they might have

regarding Steven's progress. Additionally, parents were verbally reinforced by the first or second author immediately following each session for their participation and for carrying out the task instructions.

Transfer of training to the natural environment was assessed at a two-month follow-up. Specifically, Steven and his parents went to a local restaurant for dinner where two trained observers (posing as customers) recorded the target behaviors.

Results and Discussion

Videotapes of treatment sessions were presented to two trained raters in random sequence. Raters scored the tapes independently. Inter-rater reliability was assessed according to the formula: agreement divided by agreements plus disagreements times 100. Reliability was assessed separately for each of the behaviors and averaged across the 12 sessions. Inter-rater reliabilities for the behavior were as follows: Throwing - 87%; Non-compliance - 84%; Compliance - 87%; Time spent in chair - 100% (less than 3 second discrepancies were defined as agreement).

As shown in Figure 1, the treatment intervention resulted in changes in the desired direction for all three targeted behaviors. These behavioral changes were not observed prior to the introduction of the intervention indicating that the intervention, rather than non-specific factors, was responsible for the behavior change. Statistical

analysis of the data revealed a significant decrease (t = 1.88, df = 10, $p < .05$, one tailed) in the frequency of throwing responses from pre- to post- intervention sessions. The mean number of throwing responses for Sessions 1-3 (Baseline) and Sessions 4-12 (Treatment) were 13.67 and 5.78, respectively. Similarly, a significant increase (t = 3.81, df = 10, $p < .01$, one tailed) was found from pre- to post- intervention sessions for duration of time spent sitting in the chair. The mean duration for Sessions 1-9 (Baseline) and Sessions 10-12 (Treatment) were 3 minutes 14 seconds and 19 minutes 57 seconds, respectively.

Insert Figure 1 about here

Figure 1 also depicts percent of non-compliance to total commands. It was noted that when the parents were instructed to implement the treatment package with non-compliant behaviors their total output of command statements increased (mean number of commands per session: Sessions 1-6 [Baseline] = 29; Sessions 1-7 [Treatment] = 35). That is to say, the parents appeared to be giving Steven more opportunities to comply with their commands. For this reason, it was felt that a proportion of non-compliant responses, rather than a frequency count of such responses, more accurately controlled for the number of non-compliant responses to a variable number of command statements. Statistical analysis of the data revealed a significant decrease (t = 3.486, df = 10, $p < .01$, one tailed) in the proportion of

non-compliant behaviors from pre- to post- intervention sessions. The mean percentage of non-compliant responses for Sessions 1-6 (Baseline) and Sessions 7-12 (Treatment) were 68% and 41%, respectively.

Inter-rater reliabilities for the in vivo transfer of training session were consistent with the reliabilities found for the videotape rating and were assessed according to the same criteria. Inter-rater reliabilities were: Non-compliance - 85%; Compliance - 83%; Throwing - 100%; Time Spent in Chair - 100%. As shown in Figure 1, behavioral improvement was maintained at the in vivo two-month follow-up. It would have been of considerable benefit to have had pre-treatment data regarding Steven's behavior in a restaurant situation. However, the target behaviors prior to treatment were of sufficient magnitude to preclude such assessment. The parents had attempted to take Steven to restaurants in the past and were not willing to attempt such an outing prior to Steven's improved behavior. It is of interest to note that both raters independently commented that Mr. R. smiled more during the restaurant meal than he had during any of the videotaped sessions. Additionally, his interactions with Steven were reportedly characterized by more positive verbal statements than had been observed previously. While such observations are more anecdotal than empirical they are suggestive of an improved father-son interaction at least during this period of observation. Both parents reported that they were pleased and excited about the change they observed in Steven's behavior.

The results support the efficacy of using parents as primary therapists with a retarded child. This approach is likely to offer

greater ecological validity to behavior modification done in clinical settings. Major agents of reinforcement (parents) are carried over from the lab to the natural environment, thus offering greater potential for transfer of training from the laboratory to the "real world" setting.

Additionally, parents acting as therapists can save valuable and expensive professional time. The present study utilized only a modicum of professional time (approximately 6.5 hours). Thus, the parental intervention appeared to be cost-effective as well as successful.

Reference Note

1. Sisk, M. Personal Communication, July 26, 1978.

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Footnotes

[1]Reprints may be obtained by writing the first author at the Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, VA 24061.

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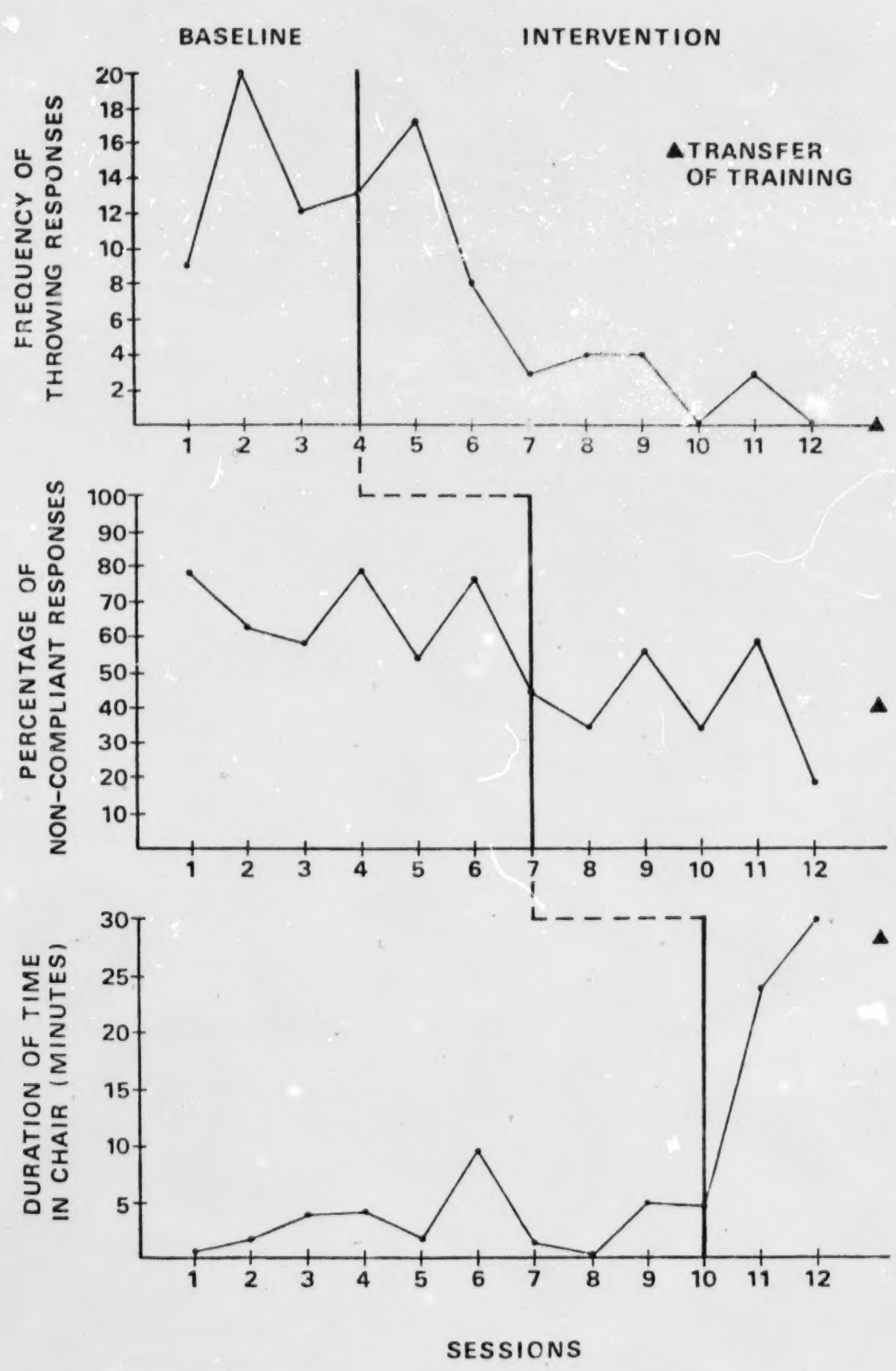
Figure Caption

Figure 1. Frequency of throwing responses, percentage of non-compliant behaviors, and duration of time spent in chair during Baseline, Intervention, and Transfer-of-training sessions.


BASELINE
INTERVENTION
FREQUENCY OF THROWING RESPONSES
▲TRANSFER OF TRAINING
PERCENTAGE OF NON-COMPLIANT RESPONSES
DURATION OF TIME IN CHAIR (MINUTES)
SESSIONS